

# Using a learning approach to enhance discussion of R2R2R in Great Lakes AOCs

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# Remediation to Restoration to Revitalization (R2R2R)

- Integrating ecological and social science research to help *maximize* the *positive societal* and *environmental outcomes* from remediation and restoration projects, and to support local decision-making
- Making more *explicit* the *implied* link between AOCs and community development.

## Restoration & Revitalization



**Managing Contamination**  
Partnering companies purchased a 15-acre parcel in Ashland Township for a Sediment Consolidation Facility, where contaminated sediments from the riverbed would be stored. This facility was completed in 2006.

State and federal agencies implemented dredging of the Ashland River between 2006 and 2011, removing over 700,000 cubic yards of contaminated sediment from the river and respending it for commercial shipping and recreational boating. The contaminated material was pumped into a specifically designed landfill and isolated from the environment.



**Restoring the River**  
Restoration of the Ashland River began in 2008. About 2,500 feet of fish habitat and a total of 10.5 acres of river, wetland, and upland habitat were created, providing a home for mammals, birds, and fish.

Through the efforts of many, the Hush-tub-hub-lah River is returning to its former glory as a "river of many fish."



Using funds from the U.S. EPA, U.S. Army Corps of Engineers, and the State of Ohio, approximately 700,000 cubic yards of contaminated sediment was removed from the river between 2006 and 2011, pumped upland through a 2.5 mile pipeline to a specially designed containment facility, and into gravel pits to help the riparian environment flourish from the heavy work.

The Ashland River Partnerships: A model approach to environmental cleanup

For more information, visit [www.ashlandriverpartnerships.org](http://www.ashlandriverpartnerships.org)

Partners: Ashland Township, Ohio EPA, U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, and others.

# Revitalization challenge

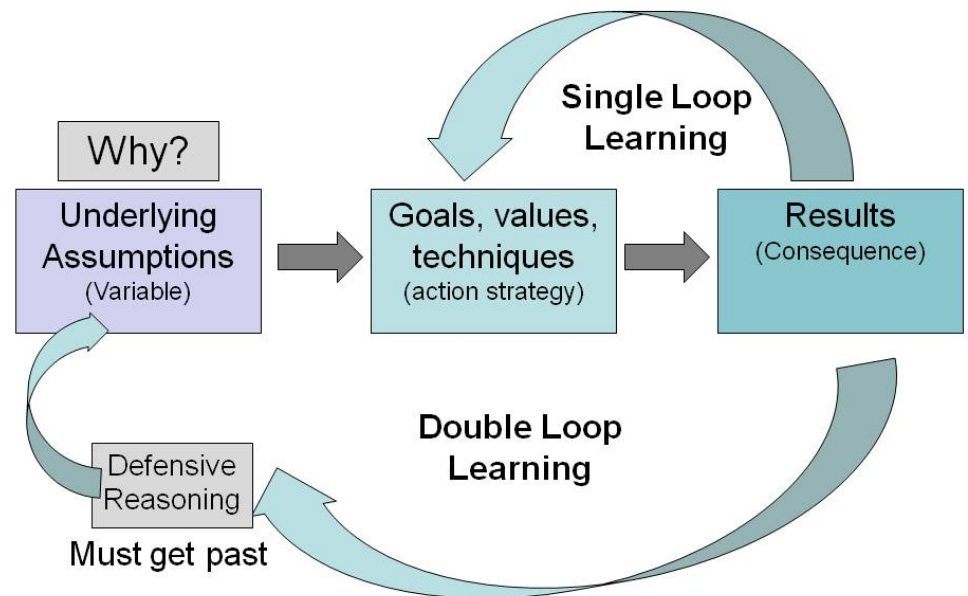
- Goals in AOCs
  - Management actions
  - Remove BUI
  - Delist AOC
- Goals in brownfields or other revitalization
  - Use land
  - Create conditions for use
    - Recreation
    - Economic use



# Challenge

- How to make distinct perspectives relate to each other
- Facilitate double-loop learning
- Knowledge coproduction

## Double Loop Learning: Argyris & Schön



# Opportunity

- Beneficial uses are analogous to ecosystem services
- Benefits we derive from nature
- How do we increase the benefits?
- Why would we?



<https://www.hankaaronstatetrail.org/about-hank-aaron>

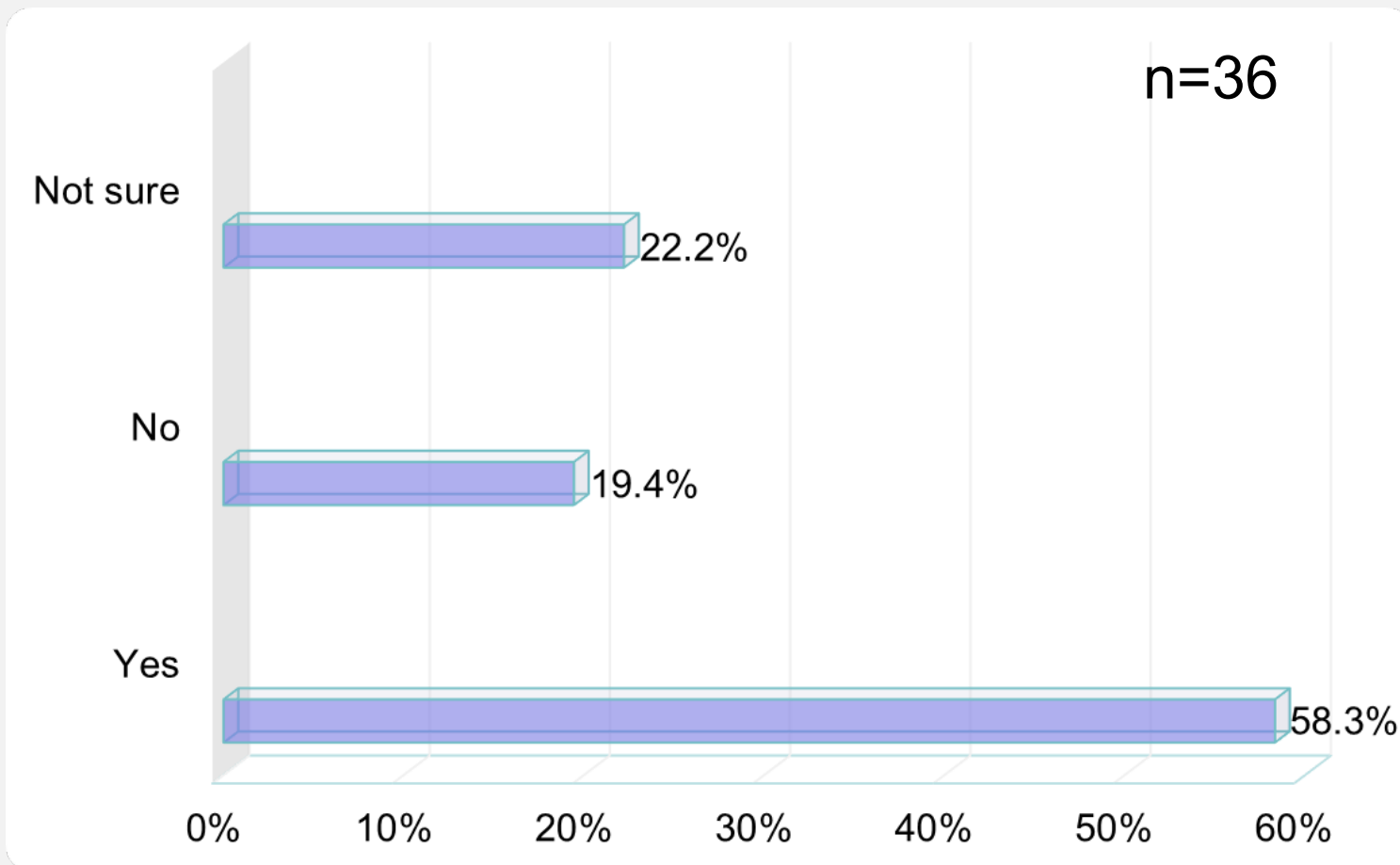


# 2016 Great Lakes Area of Concern Conference in Michigan

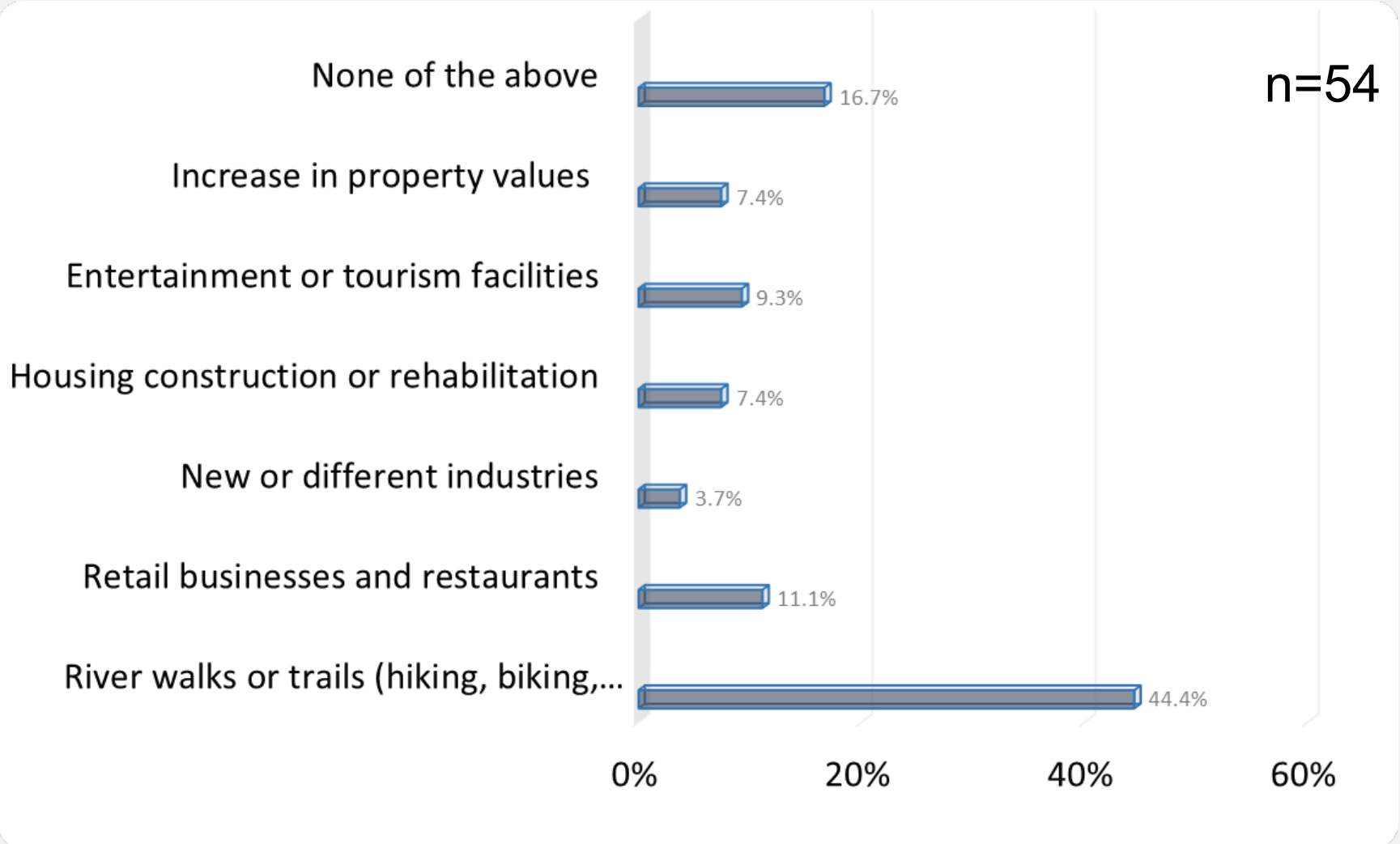
- Discussion-based method of learning
- Used brownfields literature to inform questions
- Clicker questions
- Discussion questions
- Answers recorded and analyzed



# Is improved water quality evident in your AOC?



# What changes have you witnessed in the land use adjacent to your AOC?





# Who is making what changes and why

## Changes

Trails  
Retail, restaurants  
Riverwalks  
New manufacturing  
Housing  
Marinas

## Mechanisms

Comprehensive planning  
Land use and neighborhood planning  
Park and/or transportation plans  
Brownfields remediation  
Stormwater management  
/green infrastructure



## Results

Increased use of water  
Stormwater reduction  
Improved aesthetics  
Land reuse  
Neighborhood enhancements

Cleaner water, soil, air  
create opportunities  
for activity

Land side of AOC

Water side of AOC

## Changes

Clean sediment  
Restored habitat  
Increased  
ecosystem services

## Mechanisms

Remedial Action Plans  
Public Advisory Councils  
Great Lakes Legacy Act  
Great Lakes Restoration Initiative



## Results

Remove BUI  
Cleaner water  
Safer fish  
More habitat

Environmental R2R IS  
the desired end

# Key take away

## Improved water quality

- 56% of the participants who reported improved water quality
  - Reported new trails (recreational use),
  - Almost 10% reported new retail development

## No perceived water quality improvement

- Half reported no land use change

# Contact

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